A method for valuing architecture-based business transformation and measuring the value of solutions architecture
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3.

Business value of Enterprise Architecture

This chapter discusses the value of IT for organizations and the role of architecture in improving organizational performance. Next, it describes the value the architecture can add to the change process of an organization, at strategic, tactical and operational level. It defines an architecture value assessment framework.

3.1 The Value of IT for Organizations

Many researchers have published on the topic of the value of IT for organizations. The general conclusion is that researchers do not find evidence that IT-spending provide economic advantages. Paul Strassman states: “It is safe to say that so far nobody has produced any evidence to support the popular myth that spending more on information technologies will boost economic performance.”(Strassman, 1997). He continues: “[This] does not contradict the fact that computers frequently make decisive contributions to efficiency, competitive viability, and value creation. However, high or low spending levels for computers can be associated with both inferior [and] superior results. High-performance firms do not allocate more money to IS than low-performing firms.” This conclusion is in line with what other researchers have found (Bowen, 1986).

Considering the reasons for this finding, Strassman’s conclusion is that IT expenditures are notoriously inefficient. He states: “The built-and-tear-down practices associated with each of the computerization investment cycles are the primary reason that we have not seen effective cost reductions and overall information processing costs in our society. Top management has become customized to short-life expectancy of their systems investments and have paid little attention to the need to preserve capital by expecting a longer useful life from it. [...] Short-term thinking about investments in software and people can produce disastrous consequences. The typical breakeven point from major innovations in an information system is anywhere
from four to six years or even longer for a major restructuring of how an organization plans to operate. [...] It is a short-term view of the value of systems that ultimately leaves an organization with hundreds or even thousands of inconsistent and non-interoperable solutions. [...] If the build-and-junk approach becomes the only acceptable method for supporting business operations, it is likely to cause grief in due course.” (Strassman, 1997 p. 77)

3.2 The Role of Architecture in Improving Organizational Performance

The issues raised by Strassman as the main causes for the low effectiveness of IT, are exactly the topics enterprise architecture aims to address. Strassman observes that many IT assets are built with a strong focus on the short-term. Project managers are judged on the cost and time needed for the project they run and not on, for instance, the retained value of the software they produce after four years. This last factor is, of course, much more interesting from a company perspective. Projects may produce poor results on time and within budget and deliver results that do not fit in with the business processes or may need a significant time and money to maintain during the lifetime of the system. The envisioned role of architecture is to remedy this situation.

Soh en Markus (1995) have proposed a model to link IT investments to business performance. They have identified three main processes: "the IT Conversion Process", "the IT Use Process" and "the Competitive Process". The IT Conversion Process is the process that converts IT expenditures to IT assets. The IT Use Process is the process of the usage of the IT assets, and this process will deliver IT impacts within the organization. The Competitive Process uses IT impacts to improve organizational performance / competitiveness.
Linking IT expenditures directly to organizational performance ignores the effect of the intermediate steps and may be the reason why no correlation between IT expenditures and organizational performance is found. Our understanding of the role of architecture in terms of this model is: (1) to improve the quality of the outcomes of the IT conversion process and therefore improve the quality of the resulting IT assets; and, (2) to improve the impact of IT assets within the organization, by supporting the “appropriate” use of IT assets within the organization.

### 3.3 Value of Architecture in the Business and IT Transformation Process

Paragraph 2.1.2 describes the basic steps for a transformation process:

1. Develop a business vision of the desired situation
2. Develop a business and IT strategy to achieve the desired situation
3. Create a blueprint of the desired situation, based on the business vision and on the business and IT strategy
4. Develop transformation scenarios to realize the desired situation, based on the blueprint
5. Implement the desired situation, based on the migration strategy and the blueprint, using solution architecture

The following figure illustrates the relationships between these concepts:
The objective of this thesis is to measure – at strategic level – the value of enterprise architecture-based business transformation and – at tactical level – the value of solution architecture. At strategic level, we measure the value of the business transformation derived from the enterprise architecture blueprint. At tactical level, we measure the value of enterprise architecture for programs and projects (the solution architecture). Measuring the value of architecture at operational level is not in scope for this thesis.

Based the above considerations, we define the value of architecture as follows:

**Definition 3-1. Value of Architecture**

The value of architecture is defined as the incremental, leveraging value delivered by architecture to the business and IT environment.

### 3.4 Architecture Value Assessment Framework

To understand the value of architecture we need to assess the architecture with regard to the **business value** of the architecture, the **implementation cost** and the **risks** that occur. These three aspects of architecture value can be assessed at strategic, tactical and operational level. This results in an architecture value assessment
framework. This framework will be the basis for the subsequent assessments and measurements of architecture value in this thesis.

<table>
<thead>
<tr>
<th>Levels</th>
<th>Architecture Value Aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic</td>
<td>Insight in the value of enterprise architecture-based business transformation scenarios</td>
</tr>
<tr>
<td></td>
<td>Insight in the cost of enterprise architecture-based business transformation scenarios</td>
</tr>
<tr>
<td></td>
<td>Insight in the risk of enterprise architecture-based business transformation scenarios</td>
</tr>
<tr>
<td>Tactical</td>
<td>Improving success rate of transformation programs</td>
</tr>
<tr>
<td></td>
<td>Decreasing the cost of transformation programs</td>
</tr>
<tr>
<td></td>
<td>Lowering transformation risk and increasing planning reliability of transformation programs</td>
</tr>
<tr>
<td>Operational</td>
<td>Maximize the value delivered by the operational environment</td>
</tr>
<tr>
<td></td>
<td>Minimize the cost of the operational environment</td>
</tr>
<tr>
<td></td>
<td>Minimize operational risk</td>
</tr>
</tbody>
</table>

Table 3-1. Architecture value assessment framework

This framework allows us to refine the earlier definition of the value of architecture.

Definition 3-2. Value of architecture (extended)
The value of architecture is defined as the additional, leveraging value delivered by architecture to the business and IT environment. The value can be measured at Strategic, Tactical and Operational level. It considers the aspects of Business Value, Cost and Risk.